

Notice of Allowability	Application No.	Applicant(s)	
	10/088,791	BITTNER, CHRISTOPH	
	Examiner	Art Unit	
	Susan Hanley	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/4/05.
2. ☒ The allowed claim(s) is/are 2-9 and 29.
3. ☒ The drawings filed on 21 March 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20050204</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Larry Colton on Feb. 4, 2005.

The application has been amended as follows:

IN THE SPECIFICATON:

On page 2, the sentence "The method and an apparatus are disclosed in patent claims for achieving this object 1 and 10." (lines 34-35) was deleted.

On page 3, the sentence "Further preferred refinements are specified in subclaims 2 to 9 and 11 to 20." (lines 21-22) was deleted.

IN THE CLAIMS:

The claims have been replaced by the following:

- 2. The method of Claim 29, further comprising carrying out a bright-field illumination of the cells during said dark-field illumination, wherein the step of evaluating the image of the cells further comprises observing the bright-field illumination scattered by said cells.
3. The method of Claim 29, further comprising fluorescently illuminating the cells during said dark-field illumination, wherein the step of evaluating the image of the cells comprises observing the fluorescent light scattered by said cells.
4. The method of Claim 29, further comprising carrying out an interference contrast observation of the cells during said dark-field illumination, wherein the step of evaluating the image of the cells further comprises observing contrast produced by said cells.

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5. The method of Claim 29, further comprising the steps of carrying out a bright-field illumination with phase contrast of the cells during said dark-field illumination, wherein the step of evaluating the image of the cells comprises observing the phase contrast produced by said cells.
6. The method as claimed in Claim 2, wherein the polarizations of the light used for the dark-field and light-field illuminations are different and the images that are produced by the dark-field and the light-field illuminations are distinguished by the different polarizations of the light that produce said images.
7. The method as claimed in Claim 2, wherein the wavelengths of the light used for the dark-field and light-field illuminations are different and that the images produced by said dark-field and said light-field illuminations are distinguished by the different wavelengths of the light that produce said images.
8. The method as claimed in claim 29, wherein the illumination is carried out with pulsed light.
9. The method of claim 29, wherein the sample of said liquid culture to be imaged is temporarily immobilized during the image evaluation step.
29. A method for characterizing the vitality of a culture liquid in a bioreactor comprising the steps of:
 - a) illuminating cells contained in the culture liquid by dark-field illumination;
 - b) analyzing the culture liquid *in situ* by microscopic imaging of said cells, wherein the microscopic imaging produces an image of said cells;
 - c) evaluating the image of said cells by comparing the intensities of the light scattered by the interiors of the cells to the light scattered by the edges of the cells by said dark-field illumination, wherein
 - i) the interiors of living cells appear darker compared to the edges of said cells, and
 - ii) the interiors of dead cells appears approximately as bright as the edges of said cells;and

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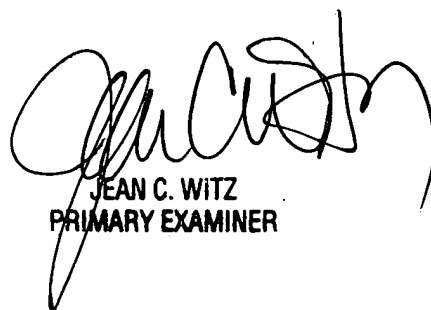
- d) comparing of the number of living cells to the number of dead cells to determine the vitality of the culture liquid. --

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Hanley whose telephone number is 571-272-2508. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susan Hanley
Patent Examiner
AU 1651



JEAN C. WITZ
PRIMARY EXAMINER